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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/033,102	10/25/2001	Robert D. Gardner	10011537-1	7724

7590 04/05/2007
HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, CO 80527-2400

EXAMINER

WEINMAN, SEAN M

ART UNIT	PAPER NUMBER
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2115

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/033,102

Applicant(s)

GARDNER, ROBERT D.

Examiner

Sean Weinman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on amendment filed on 11 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12-17 is/are allowed.
- 6) ☒ Claim(s) 1-11 and 18-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This action is responsive to the amendment filed on 11 January 2007. *Claims 1-26* are pending.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 – 11 and 18 – 26 are rejected under 35 U.S.C. 102(b) as being anticipated by England et al (US Patent No. 6,938,164).

The rejection is respectfully maintained for the reasons as set forth in the last office action.

Response to Arguments

Applicant's arguments filed 1/11/2007 have been fully considered but they are not persuasive.

In the remarks, applicant argues in substance that England et al is directed to code initialization process and England et al do not provide a protected memory region accessible to a single end-user application.

The examiner respectfully traverses applicant's arguments. While the examiner agrees that England et al teach code initialization process, the examiner submits that applicant has overlook the fact that it is the trusted core being initialized and the function of the trusted core.

"It should be noted that the invention described herein does not limit the nature of the code that will comprise the "root of trust." It is anticipated that this code will take measures (such as programming the CPU memory controllers) to protect itself from code it might run, or devices it might program. However, the "root of trust" may be a full OS, a microkernel, a Hypervisor, or **some smaller component that provides specific security services**. Hereafter, we refer to such a component as the "trusted core."

In FIG. 2, the trusted core is implemented by taking advantage of different privilege levels of CPUs 102, 104 of FIG. 1 (e.g., rings in an x86 architecture processor). In the illustrated example, these privilege levels are referred to as rings, although alternate implementations using different processor architectures may use different nomenclature. The multiple rings provide a set of prioritized levels that software can execute at, often including 4 levels (Rings 0, 1, 2, and 3). Ring 0 is typically referred to as the most privileged ring. Software processes executing in Ring 0 can typically access more features (e.g., instructions) than processes executing in less privileged Rings. Furthermore, a processor executing in a particular Ring cannot alter code or data in a higher priority ring. In the illustrated example, **a trusted core 160 executes in Ring 0, while an operating system 162 executes in Ring 1 and applications execute in Ring 3. Thus, trusted core 160 operates at a more privileged level and can control the execution of operating system 162 from this level. Additionally, the code and/or data of trusted core 160 (executing in Ring 0) cannot be altered directly by operating system 162 (executing in Ring 1) or applications 164 (executing in Ring 3). Rather, any such alterations would have to be made by the operating system 162 or an application 164 requesting trusted core 160 to make the alteration** (e.g., by sending a message to trusted core 160, invoking a function of trusted core 160, etc.). " (col. 6, lines 29 – 63)

In FIG. 3, the trusted core is implemented by establishing two separate "spaces" within computer 100: a trusted space 166 (also referred to as a protected parallel area, or curtained memory) and a normal (untrusted) space 168. These spaces can be, for example, one or more address ranges within computer 100. Both trusted space 166 and normal space 168 include a user space and a kernel space, with the trusted core 170 being implemented in the kernel space of trusted space 166. A variety of trusted applets, applications, and/or agents can execute within the user space of trusted space 166, under the

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control of trusted core 170. However, **any application 174, operating system 176, or device driver 178 executing in normal space 168 is prevented, by trusted core 170, from accessing trusted space 166.** Thus, no alterations can be made to applications or data in trusted space 166 unless approved by trusted core 170. (col. 7, lines 6 – 21) (emphasis added by the examiner).

England et al, as a whole, clearly teach that the trusted core controls all access to the trusted space¹ by end user applications, operating system, and other tasks operating on top of the trusted core. The trusted core, the only process that is running in Ring 0², can selectively approve certain access request while disapprove other access requests. To the extent claimed, it is the examiner's position that the trusted core 170 approves access to the trusted space by an end user application while disapproves all other access thereto.

Allowable Subject Matter

Claims 12-17 are allowed.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

¹ The trusted space is the secure partition where the secret data is stored.

² Even the trusted applets and applications running in the user space of the trusted space are controlled by the trusted core. Only the trusted core is running in Ring 0 while all other programs and tasks are running above Ring 0. As such, the trusted core has the complete control to the trusted space.

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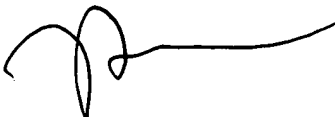
however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean Weinman whose phone number is (571) 272-2744. The examiner can normally be reached on Monday-Friday from 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Lee can be reached on (571) 272-3667. The fax number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sean Weinman
Examiner
Art Unit 2115



THOMAS LEE
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